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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/788,273	02/16/2001	Jiping Li	M-9367 US	6335

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EXAMINER

ESTRADA, MICHELLE

ART UNIT PAPER NUMBER

2823

DATE MAILED: 02/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/788,273

Applicant(s)

LI ET AL.

Examiner

Michelle Estrada

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 29-52 is/are pending in the application.
- 4a) Of the above claim(s) 11-15 and 29-37 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17 and 38-52 is/are allowed.
- 6) ☒ Claim(s) 1-10 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1/5/04 . 6) ☐ Other: _____

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/29/04 has been entered.

Applicant's arguments with respect to claims 1-10, 16 and 48-52 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Yin et al. (6,525,818) and Ushio et al. (6,489,624).

Yin et al. disclose illuminating the wafer with a beam of electromagnetic radiation having a majority of energy polarized in a direction, said direction being other than parallel to a longitudinal direction of the feature (Col. 7, lines 38-42 and Col. 7, lines 58-

63); illuminating the wafer with a beam of light polarized in a direction P, said direction P forming an angle θ with a longitudinal direction of the groove with an angle $\theta > 45^\circ$.

Yin et al. do not disclose measuring intensity of a portion of the beam reflected by the wafer.

Ushio et al. disclose measuring intensity of a portion of the beam reflected by the wafer (Col. 22, lines 37-42); the features includes a sidewall (37) of a groove (Col. 14, lines 50-52); the act of measuring is performed repeatedly at a plurality of locations transverse to the longitudinal direction of the groove (Col. 22, lines 42-47); the beam has a wavelength greater than thickness of the sidewall; the feature includes a trace of a reflective material (64); the wafer includes a layer (64) located between a source of the beam and the feature; and the layer is at least partially transmissive, so that the portion passes through the layer; the beam has a majority of energy polarized in a direction at least substantially perpendicular to the longitudinal direction; further comprising a plurality of features and performing the act of measuring for each feature of the plurality; and comparing measurement of multiple features (Col. 14, lines 55-67 and Fig. 6); forming a feature of conductive material (63) in a wafer (60) by using at least one process parameter; and changing the process parameter depending on measurements obtained from the act of repeatedly measuring (Col. 22, lines 42-64); wherein each feature is a sidewall (See fig. 6); the beam has a wavelength greater than thickness of the sidewall (Col. 21, lines 2-5); the beam has a wavelength greater than dimension of the feature; and the beam forms on the wafer a spot of a diameter greater than the dimension (Col. 22, lines 29-35); the beam has a predetermined wavelength

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and the method further comprises filtering light of a wavelength other than the predetermined wavelength (Col. 6, line 66-Col. 7, line 4); the act of comparing includes comparing measurements of two sidewalls located opposite to one another in a groove (Fig. 6).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Yin et al. and Ushio et al. to enable [REDACTED] [REDACTED] measuring intensity of a portion of the beam reflected by the wafer for the reasons discussed in Ushio et al.

Allowable Subject Matter


Claims 17, 38-47 and 48-52 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Estrada whose telephone number is 571-272-1858. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



George Fourson
Primary Examiner
Art Unit 2823



MEstrada
February 2, 2004